



Transformation of the education system is key for preventing and mitigating job displacement

Despite severe labour shortages in the EU, many regions still register high unemployment rates, especially among specific demographic groups. The low-skilled, older workers, youth, migrants, women, individuals living in peripheral areas and individuals with disabilities are at a higher risk of unemployment, facing greater challenges in (re)entering employment, accessing quality jobs and collecting the benefits of technological transformation.

The coexistence of labour shortages and unemployment simultaneously signals large skill mismatches, thereby calling for a revision of the education systems. The correlation between educational attainment and employability is undisputable. However, it is important to highlight that the educational attainment in itself is not a guarantee of employment, as employers are looking for knowledgeable and skilled individuals. Thus, the quality of provided education is in focus.

All case studies highlight that the quality of labour resources determines the development and innovativeness of the economy. However, the regions with rapidly developing economies are more likely to absorb almost all labour resources. This, at times, masks skills mismatches and imperfections of the education systems.

In most examined regions, even more developed ones, significant, yet similar, education-related challenges have been detected that are essential for addressing to transform the education system, in light of technology adoption and the future of work:

- Outdated knowledge, skills and methodologies of teachers across all educational levels, related to the lack of systematic approach to teacher development, unwillingness to undergo continuous training, and resistance to innovation at education institutions (driven by leaders/directors or teachers, depending on governance structures);
- Poor or no collaboration between the education providers and employers/industries, associated with limited flexibility in adjustment of education programmes and methods at education institutions;
- Low quality of STEM education, related to the quality of teaching, infrastructure and to a lack of promotion of STEM careers;
- Lack of education/career counselling at education institutions that helps individuals to identify their personal strengths and career options, which results in disorientation of students and graduates in terms of educational/professional track they should pursue.



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These challenges are experienced to different degrees across regions, although it is evident that the more developed regions have a much better performance on the above. This is related to a faster introduction of necessary reforms in the education systems, enabled by the availability of financial, human resources and more developed industries that can support the education sector.

The quality of teaching has been highlighted as a dominant issue across all case studies. The project team has conducted a few interviews with teachers to understand reasons behind their low motivation for continuous learning. Two key reasons have been identified – a lack of time for training, due to heavy workload, and poor employment conditions, namely low salary, that demotivates investment in their professional development. In view of representatives of the ministries of education in several countries, at times, low salaries result in negative selection of individuals for a teaching, and even research, professions. Overall, more focus on attractiveness of the teaching profession is needed to address existing shortages of teachers in many regions.

The successful approaches of regions focus on ensuring high-quality of education, which is characterised by stimulating relevant knowledge and skills for the current industry needs, in line with smart specialisation policies, and for the future of work, based on labour market insights/forecasting models. In sum, these skills include digital, social and meta/transversal skills (e.g., flexibility/adaptability, multi-tasking, planning). In addition, the successful approaches to education/training system focus on...

- Transformation of education across all educational levels, starting from kindergartens and primary schools;
- Integration of different areas of IT in education and digital tools for education to build digital skills and attract more students to IT careers;
- Introduction of education specialisations;
- Development of entrepreneurial competences.

Overall, successful transformation of the education system will support higher innovative job creation effect, prevent/mitigate job displacement and support job transformation in innovating organisations. Below are highlighted two good practice examples.

Smíchovská SPŠ is a secondary school in the Czech Republic.¹ The school encourages students to design projects and start-ups right at the school premises. The education at school includes different areas of IT, such as cybersecurity, Internet of Things, virtual and augmented reality, computer game development, robotics. Modern laboratories such as

¹ <https://www.ssps.cz/>



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the Physics Laboratory, the Cybernetic Polygon, the Virtual and Augmented Reality Laboratory, the IoT Laboratory and the classrooms of the Polytechnic Nest are built at the Smíchovské SPŠ.

The school is very popular in Prague and receives the highest number of applications among all secondary schools. Its success is related to the following factors:

- The school invests in training of teachers and in cooperation between students and graduates of other schools;
- The education programme and technologies/facilities at the school allow students to acquire relevant knowledge and skills, particularly in light of technological transformation;
- The school collaborates with start-up incubators and coworking centres to support entrepreneurship among students and to organise conferences and events.

In 2012, Estonia launched the ProgeTiger programme to create interest in technology and improve technological literacy and digital competence of teachers and students. The programme targets all young children, from kindergarteners to high school and vocational school students. Participants receive training in three major areas: engineering sciences, information technology, and design & technology, learning about programming, robotics and 3D technology.²

In parallel, Estonia started to train teachers, develop learning materials and translate Codecademy.com programming courses. Some teachers have joined the network of ProTigers that offers exciting opportunities for children and inspires new colleagues to get involved.

The success factors of the programme are the following:

- Integration of technology in the education process from childhood, especially if it is done in a game-setting, raises interest in technology and is more likely to encourage children to pursue career in technology-related fields;
- The programme targets students of all ages, thereby improving digital skills of the entire generation;
- The programme is placed in a wider framework of educational reforms in the country, therefore it is supported by the stakeholders and can be scaled up;

² <https://www.educationestonia.org/progetiger/>



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- Training of teachers is essential for ensuing quality education and to promote technology-enabled education within the country;
- The network of ProTigers represents ambassadors of the initiative that will ensure its sustainability and support, allowing it to scale up.